

# Instruction & Safety Manual

Step by step transfilling instructions.  
for the

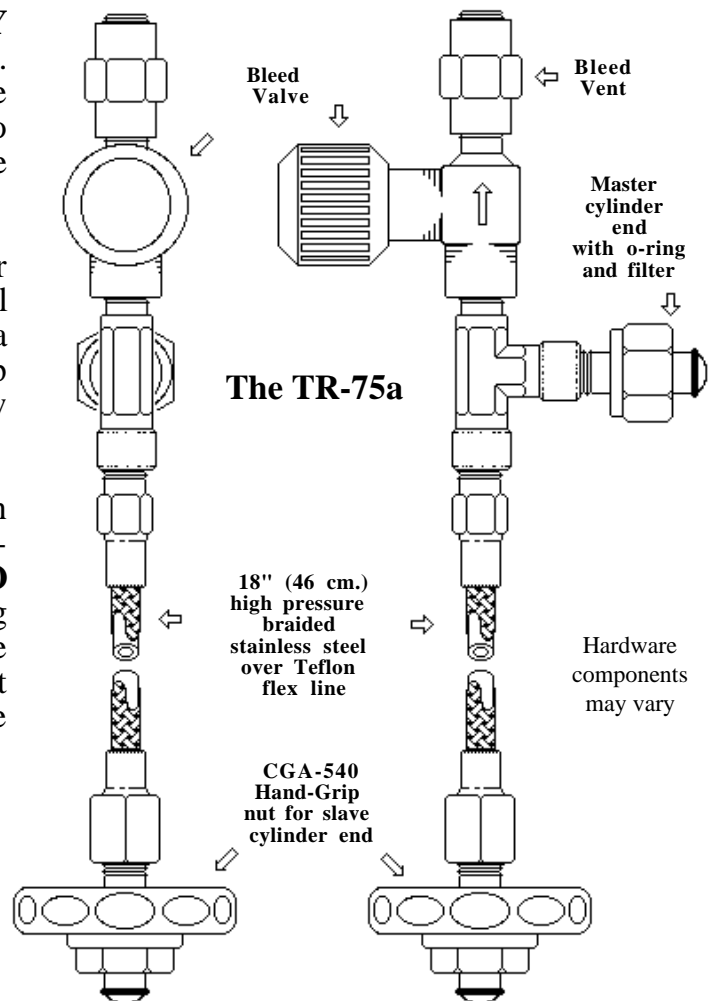
## TR-75a (revision A)



### SEE REVERSE SIDE FOR PRECAUTIONS

*The intended purpose of this device is to allow transfilling of compressed oxygen from CGA-540 to CGA-540 (USA norm) cylinders at pressures up to 3,000 psig. (207 bar).*

1. Make sure that the cylinder fittings are of the proper CGA-540 type and are in good shape and completely free of oil, grease and dirt.
2. Check that the hydro-test date has not expired on the cylinder you are about to refill. This includes checking for DOT type rated for refilling for proper pressure.
3. If the cylinder is completely empty or is in question, check to make sure the cylinder has not been internally contaminated with any combustible materials such as oils, fluids or gases. If you can not assure that the cylinder is safe. . . **DO NOT FILL IT!**
4. Securely mount the "O" ring tipped *hand-grip* side of the **TR-75a** to the slave CGA-540 cylinder. Connect the nut side with the bleed valve to the master cylinder. Once connected to both cylinders and making sure that the bleed valve is closed tightly *by hand* only (clock-wise), **SLOWLY** open the valve on the master cylinder first. You should then hear oxygen pass from the master cylinder filling the empty line then go quiet. Next, **SLOWLY** open the valve on the empty cylinder to start transfilling.
5. Fill the cylinder at about 50-75 liters/min. For cylinders over 300 liters, you may want to fill in segments pausing for about 45 seconds to a minute between charges. This will help to keep the cylinder from over heating and allow detection of problems or leakage.
6. After the cylinder has been filled, shut both valves off and **SLOWLY** open (counter clock-wise) the bleed valve to bleed the line. **DO NOT** attempt to unscrew any of the "O" ring nipple ends on any of the cylinders while the transfiller line is under pressure without bleeding it first, else damage will result to the "O" rings.



SPARE  
#011  
O-Ring  
Kit

## **Hazards of high pressure oxygen and Transfilling**

Transfilling of gaseous oxygen from one cylinder to another involves hazards associated with the handling of oxygen under pressure. A hazardous condition does exist if high pressure oxygen equipment becomes contaminated with hydrocarbons such as oil, grease or other combustible materials which may include oil from a persons hands or contaminated tools.

A cylinder will heat as it is filled from a high pressure source. The more rapidly the cylinder is filled, the higher the temperature rise in the cylinder resulting from the heat of compression of the gas. Excessive temperature may result in the ignition of any combustible materials that may be present in the system. Refill the cylinder at a flow rate that reduces heating of the cylinder. Use only equipment designed for refilling and transfilling.

Although oxygen itself is nonflammable, materials which burn in air will burn much more vigorously and at higher temperatures in an oxygen enriched atmosphere. If ignited, some combustible materials such as oil will burn in oxygen with explosive violence. Many other materials which do not burn in air will burn vigorously in oxygen-enriched atmospheres. Ignition temperatures are reduced in oxygen-enriched atmospheres. Compressed oxygen presents a hazard in the form of stored energy.

Open the cylinder valve slowly. The rapid release of high pressure oxygen through orifices, control valves, etc. in the presence of foreign particles can cause friction or impact resulting in temperatures which may be sufficient to ignite combustible materials present in the system..

### **Cleaning the adapter, service line and valve of oil and greases**

If any part of the system should become contaminated or you suspect so, you can clean it by hot water and detergent. Do not use the system if it has become contaminated with oil or grease. If the contamination is mild a liquid form of automatic dishwasher detergent or the cleaning product "Formula 409" has shown to work best for this purpose. This type of detergent is able to cut and remove almost all types of oils or greases and will rinse off without any detectable residue.

To test for contamination take a clean cotton swab "Q-Tip" and wipe the suspected area with it. Next place the tip of the cotton swab into the surface of a plane of CLEAN water while you are observing a clear reflection of light that shows the waters surface. You should not detect any oil what so ever bleed from the cotton tip fanning out over the waters surface. This is an accepted method for oil contamination detection. An oil clean surface will pass this test without any doubt.

If the service line should become contaminated internally by oil or grease it can be cleaned by soaking the entire line in a vat of hot water and a liquid form of automatic dishwasher detergent. Rinse the line in hot water and inspect. If contaminates are still present repeat soaking. Dry the line by hanging it vertically in a hot air or direct sunlight environment. However, if the contamination is more so or severe you may have to perform the cleaning process several times or use a solvent such as "111 trichloroethane".